ANNUAL INDEX

To Electronic Industries for 1944

The Annual Index has been arranged by Subjects for easy reference to related topics. The first figure indicates the Month in which the article appeared; the second figure indicates the page.

I CIRCUITS and THEORY

AMPLIFICATION and AMPLIFIERS
Cathode Follower Circuit....Moulic 10-90
Engineering Details of Magnetic Wire Recorder....Pugsley....1-116
Features of Inverse Feedback Amplifiers....Erhorn 2-86
Modulated Carrier for DC Amplifiers....Javna 1-102
Signal Mixing Amplifier 11-122
Transient Response of Wide Band Amplifiers .....Hansen....11-80
UHF Amplifier 1-136
Using Cathode Coupling....Muller 8-106
Using Series Tubes as Control Impedances....Moulic 1-88
Variable Gain-Constant DC Circuit 8-176

CATHODE RAYS
CR Tube Voltmeter 1-124
Deflection Beam Tube....Glass 8-90
Electron Lenses 8-124

DETECTOR, DISCRIMINATOR
FM Detector Circuit of Wide Adaptability....Gelzer 7-92

ELECTRON PHYSICS
Cyclotron-Atomic Research Instrument 10-86
Exploration of Cosmic Rays....Stetson 1-94
On Ehrenhaft's Magnetic Current 5-232
Similar Electromagnetic Fields in Tubes 1-123

FILTERS
Filter Networks for UHF Amplifiers....Reber 4-86
Reducing Radio Noise....Wasmansdorff 7-80

IMPULSE GENERATORS
Amplification of Voltage Impulses 8-124
Clipper and Limiter Circuit Action....Batcher, Moulic 5-100
Saw-Tooth Generator for HF Oscilloscopes....Muller 5-120
Simplified Pulse Generator....Moulic 9-84

MODULATION and MODULATORS
Modulator Load Reactance Correction....Hanson 2-108

NETWORK ANALYSIS
Cathode Follower Circuit....Moulic 10-90
Filter Networks for UHF Amplifiers....Reber 4-86
Filters Terminated in Negative Impedances 1-123
Transient Response of Wide Band Amplifiers .....Hansen....11-80

OSCILLATION and OSCILLATORS
Acorn Tube Technics....Pacent 9-94
Bridge-Controlled Oscillator Design....Bussey 8-114
High Speed Time Bases....Stewart 8-112
Klystron Characteristics....Moulic 6-90
Modulated Carrier for DC Amplifiers....Javna 1-102
Oscillator Fundamentals....Jordan 4-105
Saw-Tooth Generator for HF Oscilloscopes....Muller 5-120
Stabilization at UHF....Schmeling 9-102

RECTIFIERS and INVERTERS
Practical Applications of Selenium Rectifiers....Reinken.....1-110
Rectification With Imperfect Rectifiers 8-176
Response of Rectifier to Signal and Noise 4-122
Voltage Regulator 11-122

TRANSMISSION LINES
Discontinuities in UHF Lines 5-124
Equivalent Circuits of the Electromagnetic Field 5-131
Feeder Wire Losses....Rettinger 7-89
Impedance Concept in Wave Guides 8-124
Intercoupled Transmission Lines 5-130
Klystron Characteristics....Moulic 6-90
Line Characteristics....Greenfield 10-108
Lossless Transmission Lines 7-122
Reflector Efficiency....Reber 7-101
Transmission Line Coupling in UHF Amplifiers.....8-124

WAVE FORM ANALYSIS
Clipper and Limiter Circuit Action....Batcher, Moulic 5-100
Harmonic Analysis by Photographic Method 1-124
Square Wave Measurements 1-107

WAVE PROPAGATION
Discontinuities in UHF Lines 5-124
Equivalent Circuits of the Electromagnetic Field.....5-131
FM "Bursts" Should Diminish....Stetson 11-83
Reflector Efficiency....Reber 7-101
VHF Ignition Noise ....Sonbergh.....11-94

II COMMUNICATION SYSTEMS and EQUIPMENT

AERONAUTICAL RADIO
Automatic Devices Aid Airway Safety 1-120
CAA-RTCA Instrument Landing Installation 5-92
Enemy Radio Equipment (Signal Corps Photos) 2-73
Panoramic Principles....Moulic 7-86
Radio Equipment on B-29 Superfortress 9-92
Radio on Bombers 6-113
Servicing Airborne Radio....Sonbergh 10-76
VHF Ignition Noise....Sonbergh.....11-94

ANTENNAS
Chart for Rhombic Antenna Design 10-112

BROADCAST
Broadcasting Network Engineering Technic 4-90
Flexible Studio Console....Erhorn 8-108
Pioneer West Coast Network 6-116
United Nations North Africa Installation....Sonbergh.....2-100

CARRIER CURRENT
Carrier Current System Helps Run "Pennsy" R.R. 4-96
Carrier Systems for Radio & Wire Lines....Erickson, Lynch...6-96
Induction Radio 11-132
Industry Uses of Carrier Current....Langdon 1-82
Railroad Traffic Control With Carrier Current....Richards....2-114

FREQUENCY MODULATION
Direction or Polarization Modulation 2-132
Engineers Discuss FM 3-110
FM "Bursts" Should Diminish.....Stetson.....11-83
FM Communications Highly Successful During Landings.....5-160
FM Detector Circuit of Wide Adaptability....Gelzer 7-92
FM for War Workers 4-115
Invasion Radio Hazards....Davies 6-120
Measuring FM Wave Characteristics 9-118
Michigan's FM State Police System....Scavarda 2-90
Pioneer West Coast Network 6-116
RCA Super FM Uses Locked-In Oscillator....Beers 11-76
Should FM Sets Be Rated? 10-97
Television and FM Plans of Receiver Manufacturers.....9-90
Transient Response in FM Systems 10-112

GENERAL
AACS—World's Greatest System 4-106
Army Radio Production....Harrison 4-100
Broadcasting Network Engineering Technic 4-90
Communications in Combat 12-97
"Conveyor-Belt" Plan for Radio Communications 1-192, 5-164
Flexible Studio Console....Erhorn 8-108
Navy Radio at War 3-100
Spiral-Four System....Johnson 5-104

INDUSTRIAL COMMUNICATION
Carrier Current System Helps Run "Pennsy" R.R.....4-96
Carrier Systems for Radio and Wire Lines....Erickson, Lynch..6-96
Industry Uses of Carrier Current....Langdon 1-82
Postwar Fire Radio Service 9-98
Railroad Traffic Control With Carrier Current....Richards....2-114
Senate Studies Radio Train Control 5-238
VHF R. R. Radio 9-110

INTERNATIONAL SHORT WAVE
AACS—World's Greatest System 4-106
"Conveyor-Belt" Plan for Communications 1-192
OWI's New York Master Control 8-94
OWI 300 KW International BC Set-up 9-76

RADIO RELAY SYSTEMS and EQUIPMENT
AT&T to Try UHF Repeater Links 5-166
Radio Relay Links in Police Work....Kridler 6-128
Remote Control Circuit 9-118

RECEIVERS
Brief Case Transmitter....Duncan 10-83
Captured Enemy Radio Equipment (Japanese and Italian)....2-106
Enemy Radio (captured German Radio Equipment).....5-122
Enemy Radio Equipment (Signal Corps photos).....2-78
Low Voltage Receiver...Lorch.....12-86
Marine Console Radio Unit....McDonald, Hopkins 1-108
Michigan's FM State Police System....Scavarda 2-90
Panoramic Principles....Moulic 7-86
Postwar Home Receivers 9-83
RCA Super-FM Uses Locked-In Oscillator....Beers.....11-76
Reducing Radio Noise....Wasmansdorff 7-80
Signal Corps Analyzes Enemy Radio....Colton 3-114

RECORDING and TRANSCRIBING
Deflection Beam Tube....Glass 8-90
Earthquake Recorder 10-98
Engineering Details of Magnetic Wire Recorder....Pugsley....1-116
Engineering Problems of Picture Engineers 12-90
Recording Sound on Film....Sonbergh 8-98
Recording Two Variables....Hellman.....12-76
Scoring Stage Design....Livardy, Rettinger 4-116

SOUND and PUBLIC ADDRESS SYSTEMS
Enemy Radio 5-122
Power-VU-db Relations 7-83
Recording Sound on Film....Sonbergh 8-98
Reflection of Sound....Nachod 5-107
Scoring Stage Design....Livardy, Rettinger 4-116
Sound Amplification by Air Modulation 11-84

TELEVISION
AT&T to Try UHF Repeater Links 5-166
Columbia Urges Immediate Television Improvement.....6-148
Communications in Combat 12-97
Electronic Color Television 11-101

ANNUAL INDEX

To Electronic Industries for 1944

The Annual Index has been arranged by Subjects for easy reference to related topics. The first figure indicates the Month in which the article appeared; the second figure indicates the page.

I CIRCUITS and THEORY

AMPLIFICATION and AMPLIFIERS
Cathode Follower Circuit....Moulic 10-90
Engineering Details of Magnetic Wire Recorder....Pugsley....1-116
Features of Inverse Feedback Amplifiers....Erhorn 2-86
Modulated Carrier for DC Amplifiers....Javna 1-102
Signal Mixing Amplifier 11-122
Transient Response of Wide Band Amplifiers .....Hansen....11-80
UHF Amplifier 1-136
Using Cathode Coupling....Muller 8-106
Using Series Tubes as Control Impedances....Moulic 1-88
Variable Gain-Constant DC Circuit 8-176

CATHODE RAYS
CR Tube Voltmeter 1-124
Deflection Beam Tube....Glass 8-90
Electron Lenses 8-124

DETECTOR, DISCRIMINATOR
FM Detector Circuit of Wide Adaptability....Gelzer 7-92

ELECTRON PHYSICS
Cyclotron-Atomic Research Instrument 10-86
Exploration of Cosmic Rays....Stetson 1-94
On Ehrenhaft's Magnetic Current 5-232
Similar Electromagnetic Fields in Tubes 1-123

FILTERS
Filter Networks for UHF Amplifiers....Reber 4-86
Reducing Radio Noise....Wasmansdorff 7-80

IMPULSE GENERATORS
Amplification of Voltage Impulses 8-124
Clipper and Limiter Circuit Action....Batcher, Moulic 5-100
Saw-Tooth Generator for HF Oscilloscopes....Muller 5-120
Simplified Pulse Generator....Moulic 9-84

MODULATION and MODULATORS
Modulator Load Reactance Correction....Hanson 2-108

NETWORK ANALYSIS
Cathode Follower Circuit....Moulic 10-90
Filter Networks for UHF Amplifiers....Reber 4-86
Filters Terminated in Negative Impedances 1-123
Transient Response of Wide Band Amplifiers .....Hansen....11-80

OSCILLATION and OSCILLATORS
Acorn Tube Technics....Pacent 9-94
Bridge-Controlled Oscillator Design....Bussey 8-114
High Speed Time Bases....Stewart 8-112
Klystron Characteristics....Moulic 6-90
Modulated Carrier for DC Amplifiers....Javna 1-102
Oscillator Fundamentals....Jordan 4-105
Saw-Tooth Generator for HF Oscilloscopes....Muller 5-120
Stabilization at UHF....Schmeling 9-102

RECTIFIERS and INVERTERS
Practical Applications of Selenium Rectifiers....Reinken.....1-110
Rectification With Imperfect Rectifiers 8-176
Response of Rectifier to Signal and Noise 4-122
Voltage Regulator 11-122

TRANSMISSION LINES
Discontinuities in UHF Lines 5-124
Equivalent Circuits of the Electromagnetic Field 5-131
Feeder Wire Losses....Rettinger 7-89
Impedance Concept in Wave Guides 8-124
Intercoupled Transmission Lines 5-130
Klystron Characteristics....Moulic 6-90
Line Characteristics....Greenfield 10-108
Lossless Transmission Lines 7-122
Reflector Efficiency....Reber 7-101
Transmission Line Coupling in UHF Amplifiers.....8-124

WAVE FORM ANALYSIS
Clipper and Limiter Circuit Action....Batcher, Moulic 5-100
Harmonic Analysis by Photographic Method 1-124
Square Wave Measurements 1-107

WAVE PROPAGATION
Discontinuities in UHF Lines 5-124
Equivalent Circuits of the Electromagnetic Field.....5-131
FM "Bursts" Should Diminish....Stetson 11-83
Reflector Efficiency....Reber 7-101
VHF Ignition Noise ....Sonbergh.....11-94

II COMMUNICATION SYSTEMS and EQUIPMENT

AERONAUTICAL RADIO
Automatic Devices Aid Airway Safety 1-120
CAA-RTCA Instrument Landing Installation 5-92
Enemy Radio Equipment (Signal Corps Photos) 2-73
Panoramic Principles....Moulic 7-86
Radio Equipment on B-29 Superfortress 9-92
Radio on Bombers 6-113
Servicing Airborne Radio....Sonbergh 10-76
VHF Ignition Noise....Sonbergh.....11-94

ANTENNAS
Chart for Rhombic Antenna Design 10-112

BROADCAST
Broadcasting Network Engineering Technic 4-90
Flexible Studio Console....Erhorn 8-108
Pioneer West Coast Network 6-116
United Nations North Africa Installation....Sonbergh.....2-100

CARRIER CURRENT
Carrier Current System Helps Run "Pennsy" R.R. 4-96
Carrier Systems for Radio & Wire Lines....Erickson, Lynch...6-96
Induction Radio 11-132
Industry Uses of Carrier Current....Langdon 1-82
Railroad Traffic Control With Carrier Current....Richards....2-114

FREQUENCY MODULATION
Direction or Polarization Modulation 2-132
Engineers Discuss FM 3-110
FM "Bursts" Should Diminish.....Stetson.....11-83
FM Communications Highly Successful During Landings.....5-160
FM Detector Circuit of Wide Adaptability....Gelzer 7-92
FM for War Workers 4-115
Invasion Radio Hazards....Davies 6-120
Measuring FM Wave Characteristics 9-118
Michigan's FM State Police System....Scavarda 2-90
Pioneer West Coast Network 6-116
RCA Super FM Uses Locked-In Oscillator....Beers 11-76
Should FM Sets Be Rated? 10-97
Television and FM Plans of Receiver Manufacturers.....9-90
Transient Response in FM Systems 10-112

GENERAL
AACS—World's Greatest System 4-106
Army Radio Production....Harrison 4-100
Broadcasting Network Engineering Technic 4-90
Communications in Combat 12-97
"Conveyor-Belt" Plan for Radio Communications 1-192, 5-164
Flexible Studio Console....Erhorn 8-108
Navy Radio at War 3-100
Spiral-Four System....Johnson 5-104

INDUSTRIAL COMMUNICATION
Carrier Current System Helps Run "Pennsy" R.R.....4-96
Carrier Systems for Radio and Wire Lines....Erickson, Lynch..6-96
Industry Uses of Carrier Current....Langdon 1-82
Postwar Fire Radio Service 9-98
Railroad Traffic Control With Carrier Current....Richards....2-114
Senate Studies Radio Train Control 5-238
VHF R. R. Radio 9-110

INTERNATIONAL SHORT WAVE
AACS—World's Greatest System 4-106
"Conveyor-Belt" Plan for Communications 1-192
OWI's New York Master Control 8-94
OWI 300 KW International BC Set-up 9-76

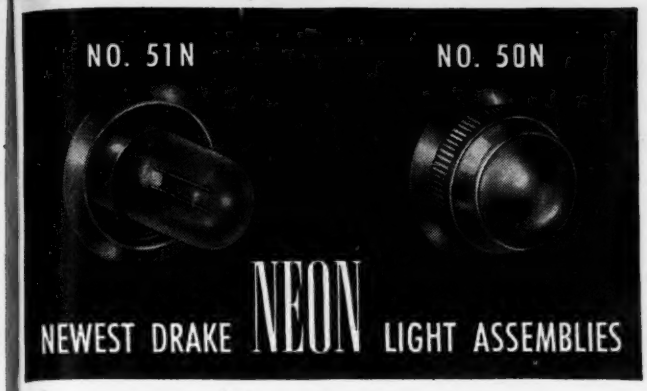
RADIO RELAY SYSTEMS and EQUIPMENT
AT&T to Try UHF Repeater Links 5-166
Radio Relay Links in Police Work....Kridler 6-128
Remote Control Circuit 9-118

RECEIVERS
Brief Case Transmitter....Duncan 10-83
Captured Enemy Radio Equipment (Japanese and Italian)....2-106
Enemy Radio (captured German Radio Equipment).....5-122
Enemy Radio Equipment (Signal Corps photos).....2-78
Low Voltage Receiver...Lorch.....12-86
Marine Console Radio Unit....McDonald, Hopkins 1-108
Michigan's FM State Police System....Scavarda 2-90
Panoramic Principles....Moulic 7-86
Postwar Home Receivers 9-83
RCA Super-FM Uses Locked-In Oscillator....Beers.....11-76
Reducing Radio Noise....Wasmansdorff 7-80
Signal Corps Analyzes Enemy Radio....Colton 3-114

RECORDING and TRANSCRIBING
Deflection Beam Tube....Glass 8-90
Earthquake Recorder 10-98
Engineering Details of Magnetic Wire Recorder....Pugsley....1-116
Engineering Problems of Picture Engineers 12-90
Recording Sound on Film....Sonbergh 8-98
Recording Two Variables....Hellman.....12-76
Scoring Stage Design....Livardy, Rettinger 4-116

SOUND and PUBLIC ADDRESS SYSTEMS
Enemy Radio 5-122
Power-VU-db Relations 7-83
Recording Sound on Film....Sonbergh 8-98
Reflection of Sound....Nachod 5-107
Scoring Stage Design....Livardy, Rettinger 4-116
Sound Amplification by Air Modulation 11-84

TELEVISION
AT&T to Try UHF Repeater Links 5-166
Columbia Urges Immediate Television Improvement.....6-148
Communications in Combat 12-97
Electronic Color Television 11-101



NEWEST DRAKE NEON LIGHT ASSEMBLIES

DEPENDABLE SERVICE ☆ LONGER LIFE

Drake No. 50N NEON Jewel Min. Bayonet Assembly is ideal where a distinct signal is required and observer is directly in front of instrument panel. Its ½" smooth clear jewel magnifies and intensifies the illumination from the Neon lamp. Red glass jewel can also be supplied. The No. 51N (without jewel) is applicable where 180° visibility is desirable. Both units have *built-in resistors* for NE51 Neon Lamps operating on standard 105 to 125 volt circuits. These rugged units offer BIG savings in power (1/25 watt), long life (3000 hours), wide voltage range, and great reliability.

DRAKE

SOCKET AND JEWEL LIGHT ASSEMBLIES

DRAKE MANUFACTURING CO.
1713 W. HUBBARD ST. • CHICAGO, U. S. A.

Kahle
ENGINEERING COMPANY
ELECTRON TUBE MACHINERY
All types, standard and special design.

Specialists in equipment and methods for the manufacture of:

RADIO TUBES — NEON TUBES
CATHODE RAY TUBES — PHOTO CELLS
FLUORESCENT LAMPS — X-RAY TUBES
INCANDESCENT LAMPS — GLASS PRODUCTS

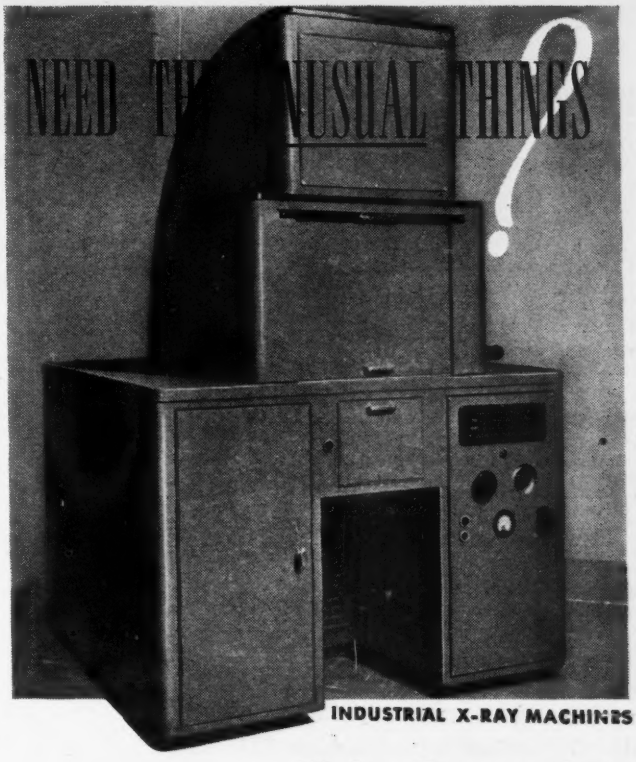
On Production or Laboratory basis

1307-1315 SEVENTH ST., NORTH BERGEN, N. J., U. S. A.

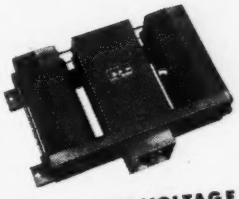
CORNELL M. E. GRADUATE

Now in Navy Research, expecting release from project early '45, seeks connection with Manufacturer of Electronic Equipment. . . . Ambitious, willing to work hard and long. Opportunity for advancement principal consideration.

Box W24
ELECTRONIC INDUSTRIES
480 Lexington Ave., New York 17, N. Y.



INDUSTRIAL X-RAY MACHINES



CONSTANT VOLTAGE TRANSFORMERS

PRODUCTION DRILLS

STEEL SHOP BOXES

We're Prepared to Ship in a HURRY!

Radio Group's *National Emergency Service* extends far beyond the usual items of Radio and Electronic Supplies. Our first consideration is SPEEDY DELIVERY. Vital war research or production lines must continue unchecked by sluggish procurement and deliveries.

The few products pictured here merely suggest the "unusual" items found in OUR huge well diversified stocks. So, if the things you need in a hurry don't appear in our Reference Book, include them in your order anyway. Our specially trained technicians will know all the procurement short-cuts. *National Industrial Emergency Service* lends valuable aid to thousands of satisfied buyers from coast to coast. Mail or phone your orders to the nearest distributor listed. Or write today for big free reference book and buyers guide. You'll get a degree of delivery-speed unapproached in the history of Radio Supplies distribution.

Radio and Electronic Supplies

WRITE OR PHONE YOUR NEAREST DISTRIBUTOR

TERMINAL RADIO CORP.
85 Cortlandt St., Phone WOrth 2-4416 NEW YORK 7
WALKER-JIMIESON, INC.
311 S. Western Ave., Phone Canal 2525 CHICAGO 12
RADIO SPECIALTIES CO.
20th & Figueroa, Phone Prospect 7271 LOS ANGELES 7

NATIONAL INDUSTRIAL EMERGENCY SERVICE

Industrial Applications for Television....Beal 7-116
NBC Plans Nationwide Television System 5-224
7000 Hours Experience in Television Service....Lubcke.....7-110
Television 9-120
Television and FM Plans of Receiver Manufacturers.....9-90
Television Studio Lighting 11-166
Television Today 5-314
Television Today 7-124
Television Today 8-130
Television Today 10-120
Television Today 11-120
Television Today 12-114
Television Service Hinges on Frequency 12-102
Television Without Scanning 1-122
Transient Response of Wide Band Amplifiers....Hansen.....11-80

TRANSCEIVERS

Carrier Systems for Radio and Wire Lines....Erickson, Lynch..6-96
Postwar Handie-Talkie Uses 9-110

TRANSMITTERS

Brief Case Transmitter....Duncan 10-83
Captured Enemy Radio Equipment (Japanese and Italian)....2-106
Enemy Radio Equipment (Signal Corps photos) 2-78
Low Frequency Unit 9-97
Marine Console Radio Unit....McDonald, Hopkins 1-108
Michigan's FM State Police System....Scavarda 2-90
200 KW HF Transmitter 7-90
United Nations North Africa Installation....Sonbergh 2-100

UHF COMMUNICATION and EQUIPMENT

AT&T to Try UHF Repeater Links 5-166
CAA-RTCA Instrument Landing Installation 5-92
Filter Networks for UHF Amplifiers....Reber 4-86
Klystron Characteristics....Moulic 6-90
Postwar Fire Radio Service 9-98
Radio Relay Links in Police Work....Kridler 6-128

III COMPONENTS, MEASUREMENT and TEST APPARATUS

CAPACITORS

Dielectric Constants and Power Factors at Centimeter Wave Lengths 6-140
Dielectric Constant of Ionized Air in a Tube 6-140
Winding Industrial Capacitors 2-113

COILS

On Powder-Cored Coils 2-120

CONTROL MOTORS

Multiwinding Motors for Electronic Uses, I....Glaser 3-104
Multiwinding Motors for Electronic Uses, II....Glaser 4-102

FREQUENCY METERS

Direct Reading Frequency Meter....Hickok 8-120
Frequency Range Extension 8-117

INSULATION MATERIALS

Blind Aid Mica Output 3-121
Electric Properties of Ceramic Materials 10-114
On Organic Isolators 2-120
Power Factor of Indian Mica 2-121
Processing of Glass for Tubes 4-120

MISCELLANEOUS

Beryllium-Copper Springs....Klock 5-108
Tropicalizing Problems 7-113

OSCILLOGRAPHS

Circular and Polar Sweeps, I....Batcher 9-80
Circular and Polar Sweeps, II....Batcher 10-80
CR Tube Voltmeter 1-124
High Speed Time Bases....Stewart 8-112
Saw-Tooth Generator for HF Oscilloscopes....Muller 5-120

QUARTZ and OTHER PIEZO-CRYSTALS

Process Control Methods for Industrial Uses, IV....Batcher..5-112
X-Ray Adjustment of Quartz Plates....Frondel.....12-98

RELAYS and SWITCHES

Beryllium-Copper Springs....Klock 5-108
Relay Testing 8-124

RESISTORS

Behavior of Resistors at Radio Frequencies....Anthes 9-86

SIGNAL GENERATORS

Design of Frequency Meter 2-120

TRANSFORMERS

Small Power Transformer Design Factors....Thomson 2-99
Wound-Core Transformer Design....Lee 1-114

TUBES

Acorn Tube Technics....Pacent 9-94
Continuous Production of Large Power Tubes 8-88
Deflection Beam Tube....Glass 8-90
Deflection-Modulated CR Tube 11-112
Electron Tube Development 12-81
Evolution of Tantalum Tubes....Wagener 6-108
FM-Tele Shift Slight 11-108
Klystron Characteristics....Moulic 6-90
Measuring Color Response of Photocells 4-120
On Tube Circuits 2-121
On The Virtual Cathode 7-122
Production of Cathode Ray Tubes 8-110
Rating Tube Performance 5-103
Similar Electromagnetic Fields in Tubes 1-123
Space Charge Theory 10-112
Standard Tele Tube 11-120
Tube Performance at Ultra High Frequency..Llewellyn, Peterson..11-88

VACUUM TUBE VOLTMETERS

Cathode Ray Tube VM 1-124
Low Frequency VTVM....Van Rensselaer 6-110

IV ELECTRONIC APPLICATIONS

CONTROL SYSTEMS and EQUIPMENT

General Problems

Deflection Beam Tube....Glass 8-90
Electronic Fire Control 1-106
Process Control Methods for Industrial Uses, I....Batcher....2-110
Process Control Methods for Industrial Uses, II....Batcher...3-118
Process Control Methods for Industrial Uses, III....Batcher...4-94
Process Control Methods for Industrial Uses, IV....Batcher..5-112
Railroad Traffic Control with Carrier Current....Richards....2-114
Vacuum-Tube Thyratron Phase Control Circuit 2-121

Photoelectric

Electronic Controls in Paper Industry 9-111
Photoelectric Dimension Gage....Edelman 5-96
Photoelectric Flash-Camera 7-95
Phototube Follows Cutting Pattern 5-127
Phototubes Revolve Doors 6-131

Speed Control

Industry Uses of Carrier Current....Langdon 1-82
Machine Tool Load Control 10-111
Synchronizer for Motors 2-121
Winding Industrial Capacitors 2-113

Time Control

Cold Cathode Timing Devices....Myles 7-98
Rapid Timing Switch 3-184

Welding Control

Dual Pressure Resistance Welding....Humphrey 1-98

GENERAL—INDUSTRY APPLICATIONS

Aircraft

Precision Leveling....Bennett 10-92
Torture Chambers 12-105

Automotive—Heavy Metal

Measurement of Static and Dynamic Pressures, I....Schultz, Grinstead, Frawley, Chapman 8-84
Measurement of Static and Dynamic Pressures, II....Schultz, Grinstead, Frawley, Chapman 9-104
Tubes in Metallurgical Research, I....Potter.....4-112
Tubes in Metallurgy, II....Potter 5-115

Chemical

Chemical Research....Eddison.....11-98
Tubes in Metallurgical Research, I....Potter 4-112
Tubes in Metallurgy, II....Potter 5-115
Tubes on the Job 12-101

HIGH FREQUENCY HEATING

Annealing, Hardening, Tempering

Case-studies of Typical Induction Heating Jobs 5-110
Continuous Heat Treating 10-111
HF Induction Heating for Thin Cases 10-112
Operating Experience with HF Heating....Gillespie 2-80

Bonding

Operating Experience with HF Heating....Gillespie 2-80

Brazing

Case-studies of Typical Induction Heating Jobs 5-110
Operating Experience with HF Heating....Gillespie 2-80

Drying

HF Heating Speeds Penicillin 8-118
Operating Experience with HF Heating....Gillespie 2-80

General Applications and Equipment

Case-studies of Typical Induction Heating Jobs 5-110
Coupling Methods for Induction Heating....Roberds 4-80
HF Heating Oscillators....W. C. Rudd 7-96
Maintaining Electronic Heat Equipment 5-154
Operating Experience with HF Heating....Gillespie 2-80

Molding

Electronic Tire Repairs 8-118
Operating Experience with HF Heating....Gillespie 2-80

Sterilizing and Irradiation

High Frequency Bug Eliminator 3-122

MANUFACTURING PROCESSES

Miscellaneous

Electronic Magnetizer....Hague 12-96
Torture Chambers 12-105
Tubes in Metallurgy, II....Potter 5-115

MEASUREMENTS, TESTING and TEST PROCESSES

Cosmic Rays

Exploration of Cosmic Rays....Stetson 1-94
Reflector Efficiency.... Reber 7-101

Electron Microscopes

Chemical Analysis by Electron Microscopy 4-110
Electron Microscopes 6-130

METAL Stampings DUPLICATED WITHOUT DIES

If you desire to save time and critical materials on production of metal stampings or other small parts, then the DI-ACRO System of "Metal Duplicating Without Dies" merits your consideration. It is based on the rapid and accurate production of formed parts with DI-ACRO Shears, Brakes and Benders. All duplicated work is accurate to .001". These precision machines are adaptable to an endless variety of work, and ideally suited for use by girl operators. For short runs your parts are processed in a matter of hours instead of waiting weeks for dies.

Send for This Catalog
"DIE-LESS DUPLICATING"

It illustrates many stampings or parts made without dies, gives full details on DI-ACRO machines and shows how they may readily be adapted for various applications. Request your copy now.

DI-ACRO PRECISION MACHINES DIE-LESS DUPLICATING ← Pronounced "DIE-ACK-RO"

O'NEIL-IRWIN MFG. CO.

348 EIGHTH AVE. SO., MINNEAPOLIS 15, MINN.

Radio AND ELECTRONIC DEVICES

BURSTEIN-APPLEBEE CO.

1012-1014 McGee St. • Kansas City 6, Missouri

An established Connecticut manufacturer of small precision parts and assemblies, chiefly on contract basis, desires man familiar with such production to handle sales contacts and correspondence. Should be able to discuss design of customer's product for commercial production, quality requirements, etc.

Write Box No. E-68
ELECTRONIC INDUSTRIES
480 Lexington Ave. New York 17, N. Y.

SOLDER POTS

1¾ and 2 pound capacities

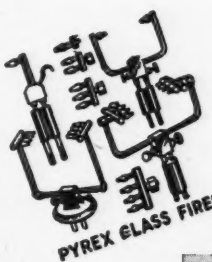
for continuous 110 volt AC-DC operation

The most versatile solder pot on the market for tinning small wires, terminals, radio tube prongs, leads, etc., with maximum efficiency and minimum cost. Particularly adapted to radio, motor and electrical equipment plants where individual solder pots are desired for each operator. A single-heat, porcelain nickel-chrome heating element, which can be quickly and inexpensively replaced when necessary, heats the pot. 220 v. available. Ruggedly constructed for long, dependable service.

LECTROHM INCORPORATED

5139 West 25th Street, Cicero 50, Illinois
Division of
The National Lock Washer Company, Newark, N. J.

EISLER'S *General Glass Working Equipment*



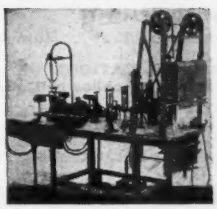
manufacturing RADIO, CATHODE RAY, ELECTRONIC *and* FLUORESCENT TUBES, ELECTRONICS LABORATORY UNITS. WELDERS, TRANSFORMERS FROM ¼ TO 500 KVA.

Glass Cutter

Ampule Machine

Tipless Stem Mach.

Sealing Machine


Electronics Laboratory Unit

Flare Machine

CHAS. EISLER
EISLER ENGINEERING CO.
778-80 SO. 13th ST. NEAR AVON AVE NEWARK 3 N. J.

Foreign Object Detectors

Electronic Divining Rods 4-118
Electronic Indicator for Liquid Separation 10-112
Fishing via Ultrasonics 6-131
Polarographic Analysis....Walker 3-120

General Measurements—Electrical Quantities

Automatic Calibration 4-93
Frequency Range Extension 8-117
Measuring Potentials in Growing Things....Stetson 12-82
Measuring Small Inductances 4-122
Recording Frequency Drift 2-116
Recording Two Variables....Hellman 12-76
Square Wave Measurements 1-107
Wavemeter for 14 cm. Waves 11-112

General Measurements—Physical Quantities

Baling Press Recorder....Kliever 7-106
Measurement of Static and Dynamic Pressures, I....Grinstead, Frawley, Chapman, Schultz 8-84
Measurement of Static and Dynamic Pressures, II....Grinstead, Frawley, Chapman, Schultz 9-104
Measuring Projectile Velocities 10-110
Measuring Short Time Intervals 11-112
PE Tube Gas Detection 3-108
Photoelectric Dimension Gage....Edelman 5-96
Polarographic Analysis....Walker 3-120
Precision Leveling....Bennett 10-92
Process Control Methods for Industrial Uses, I....Batcher....2-110
Process Control Methods for Industrial Uses, II....Batcher...3-118
Process Control Methods for Industrial Uses, III....Batcher...4-94
Process Control Methods for Industrial Uses, IV....Batcher..5-112
Recording Two Variables....Hellman 12-76
Spectrophotometer Camouflage Technic 1-121
Tubes in Metallurgical Research, I....Potter 4-112
Tubes in Metallurgy, II....Potter 5-115

Maintenance and Testing

Automatic Calibration 4-93
Continuous Production of Large Power Tubes 8-88
Precision Leveling....Bennett 10-92
Production of Cathode Ray Tubes 8-110
Recording Frequency Drift 2-116
Recording Two Variables....Hellman 12-76
Torture Chambers 12-105

Oscillographic Measurement and Testing

Circular and Polar Sweeps, I....Batcher 9-80
Circular and Polar Sweeps, II....Batcher 10-80
Panoramic Principles....Moulic 7-86
Square Wave Measurements 1-107
Tubes in Metallurgical Research....Potter 4-112

Photoelectric

Engineering Problems of Picture Engineers 12-90
Partly-Filled Tin Cans Detected by PE-Tube 7-116
PE Tube Gas Detection 3-108
Photoelectric Dimension Gage....Edelman 5-96
Slow Action Recording....Remnick 7-102
Tubes in Metallurgical Research....Potter 4-112

Piezoelectric

Process Control Methods for Industrial Uses, IV....Batcher...5-112
Tubes on the Job...Piezoelectric Probe 8-119

Seismic and Geophysical Prospecting

Earthquake Recorder 10-98

Spectrographic

Light Spectra Analysis....Valle 6-114
Mass Spectrometer—New Industrial Tool....Berry 6-94
Tubes on the Job...Mass Spectrometer in Chemistry 2-118

Vibration

An Automatic Vibration Analyzer 6-140
Earthquake Recorder 10-98
Process Control Methods for Industrial Uses, IV....Batcher...5-112
Torsional Vibration Study 7-84

MEDICAL

Measuring Potentials in Growing Things....Stetson 12-82

MOTION PICTURES

Engineering Problems of Picture Engineers 12-90

RECTIFIERS

Coal Mine Installs Portable Ignitron 9-110
Practical Applications of Selenium Rectifiers....Reinken 1-110

WELDING SYSTEMS and EQUIPMENT

Dual Pressure Resistance Welding....Humphrey 1-98

X-RAY EQUIPMENT and APPLICATIONS
(Industrial Radiology, Medical Applications, General Scientific)

High Speed X-Rays by Field Emission Arc 11-104
Million Volt X-Rays....Mermagen 10-100
Secret X-Ray Ink Detects Marked Documents 9-111
Tubes on the Job....X-Ray for Ballistics Research 8-122
2-Million Volt X-Ray Tube 11-79
X-Ray Adjustment of Quartz Plates....Frondel 12-98

V GENERAL ENGINEERING

ALLOCATIONS

FM-Tele Shift Slight 11-108
Immediacy vs Long Term Looms as RTPB Problem....McMinn.2-84
Spectrum Division 6-112
Television Service Hinges on Frequency 12-102

ENGINEERS

Chief Engineer Jett Appointed Member of FCC by Roosevelt..2-124
Elihu Thomson's Wireless Experiments of 1871-5....Woodbury 5-188
Engineer as Executive....Clement 1-119
Engineer as Executive....Kettering 2-103
Engineer as Executive....Kaar 6-123
First Milestone of the Electronic Era....Butler 1-180
Goldsmith V-Chairman RTPB 1-97
Hubert Michael Turner, Pres. IRE 1-93
6 Keys to Engineering Success....DuMont 11-111
The Engineer as Executive....Wilmotte 8-116

GENERAL

Army Radio Production....Harrison 4-100
Behind the Development Scenes 4-84
California—Pacific Gateway....Code 6-99
California Plans Her Electronic Future....McMinn 6-100
California Sees Bright Export Future....Hansen 6-107
Cut-Backs to Bring Production 9-124
Desert Laboratory 6-119
Engineer as Executive 5-129
Engineering Laboratory 1-112
Hollywood on Wheels 6-126
Instrument Development Labs 5-90
Radio in Russia....Ellis 7-76
Research Laboratories 7-78
WPB Moves to Ease Industry Reconversion....Davies 3-102

MAINTENANCE and REPAIR PROBLEMS and PRODUCTION

Balancing Production Loads 10-106
Factory Short Cuts 1-104
Factory Short-Cuts 12-88
Ideas to Speed Production 6-124
Ideas to Speed Production 11-102
Ideas and Methods for Radio-Electronic Plants 10-104
Maintaining Electronic Heat Equipment 5-154
Maintaining Military Radio Communications....Davies 8-102
Military Radio Production Technics 9-108
Production Ideas and Technics 4-108
Production Must Increase 2-112
Production Short Cuts 7-104
Production Short Cuts 8-104
Production Speed-Up 3-116
Radio Electronic Production....McIntosh 3-408
Short Cuts in Production 2-104
Servicing Airborne Radio....Sonbergh 10-76
Six Radio-Electronic War Production Ideas 5-118

MARKET PLANNING and SELLING

California Plans Her Electronic Future....McMinn 6-100
Finding the Answer to Postwar Products 3-106
Latin-American Markets for Home Radio 10-94
Planning for Postwar Product Development 2-88
Planning New Products for Postwar Markets 1-86
Postwar Horizons....Davies 12-79

PROFESSION REVIEW

Engineers Talk Shop 11-91

RADIO-ELECTRONIC STATISTICS

1944 Statistical Picture 1-91
Radio Electronic Production....McIntosh 3-408
Statistical Picture of the West 6-103

SOCIETIES and ORGANIZATIONS

Association News 5-142
Association News 7-126
Definite Postwar Plan Urged at RMA Conference 7-114
Engineers Attend IRE-AIEE Technical Meeting 2-122
Engineers Discuss FM 3-110
Goldsmith V-Chairman RTPB 1-97
Immediacy vs Long Term Looms as RTPB Problem....McMinn.2-84
IRE-AIEE Winter Meeting 1-92
Postwar Studies Engage IRE 3-113

STANDARDIZATION

Circuit Diagram Symbols Are Standardized 8-200
Graphical Symbols for Vacuum Tubes 7-264
Immediacy vs Long Term Looms as RTPB Problem....McMinn.2-84
Military Radio Should Be Simplified and Standardized.... Wolf, Hull 1-100
Propose Standard Symbols 3-115
Goldsmith V-Chairman RTPB 1-97

VI DEPARTMENTS and FEATURES

SUPPLEMENTS

Broadcast Network Engineering Technique—April

ELECTRONIC APPLICATION BIBLIOGRAPHY

Where to Find Special Information on Electronic Uses in Industry....White 2-96

TRADE DIRECTORY

California's Electronic Industries 6-132
Electronic Engineering Directory 3-123

AUTHOR INDEX ON FOLLOWING PAGE

WANTED

By RBM Manufacturing Co.
Division of Essex Wire Corp.
Logansport, Ind.

DESIGN LAYOUT DRAFTSMAN
PRODUCT DESIGNERS
ELECTRICAL ENGINEERS

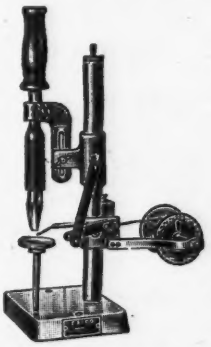
These positions offer real opportunities for advancement now and in the post-war era to those men who can design:

RELAYS
SOLENOIDS
VOLTAGE REGULATORS
SWITCHES
REMOTE CONTROL MECHANISMS
OVERLOAD CIRCUIT BREAKERS
ELECTRONIC DEVICES

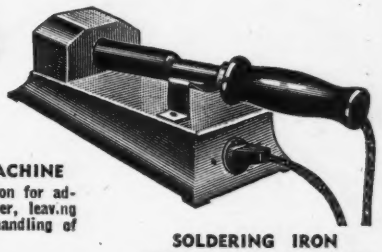
Let us hear from you

ESICO

REG. U. S. PAT. OFF.



SOLDERING IRONS
are widely used in industrial plants throughout the country. They are designed to withstand the strain of continuous service required of factory tools.



SPOT SOLDERING MACHINE
designed for treadle operation for advancement of iron and solder, leaving operator's hands free for handling of product.

SOLDERING IRON TEMPERATURE CONTROLS
prevent overheating of soldering irons between soldering operations. Irons do not deteriorate when being used. The idle period causes oxidation and shortens life.

SOLDER POTS
ruggedly constructed pots of various sizes designed for continuous operation and so constructed that they are easily and quickly serviced, should elements have to be replaced.

Write for Catalog

ELECTRIC SOLDERING IRON CO., INC.
2144 WEST ELM STREET, DEEP RIVER, CONN.

Continuously Since 1930

PRECISION GROUND *Crystals* BY **HIPOWER**

AIRCRAFT · MARINE · BROADCAST · POLICE · COMMERCIAL · AMATEUR

HIPOWER CRYSTAL COMPANY
Sales Division—205 W. Wacker Drive, Chicago 6
Factory—2033 Charleston St., Chicago 47, Ill.

ELECTRONIC ENGINEERS
MECHANICAL DESIGNERS

Manufacturer of Electronic equipment seeks the services of qualified Electronic Engineers and Mechanical Designers for development and research work on high quality AM-FM Radio-phonographs. Extensive experience required in Design Engineering of Electronic equipment, including receiver, radio chassis and dial mechanisms. Engineering degree desirable but not essential. Excellent opportunities. Please submit resume.

PHILHARMONIC RADIO CORPORATION
528 East 72nd Street
New York 21, N. Y.

METAL STAMPINGS

IN SMALL LOTS

There is no other method of producing metal stampings in small lots that can equal the process originated by Dayton Rogers Mfg. Co. No matter how intricate the design or how small the quantity requirements, we can show you a substantial saving.

Write for illustrated booklet No. 176-5

•

DAYTON ROGERS
MANUFACTURING COMPANY
2841 12th Avenue South
MINNEAPOLIS 7, MINNESOTA

AUTHOR INDEX

ANTHES, R. G.
Behavior of Resistors at RF.....9-86

BATCHER, RALPH R.
Circular and Polar Sweeps, (I) 9-80
Circular and Polar Sweeps, (II) 10-80
Clipper and Limiter Circuit Action..5-100
Control Methods for Industrial Uses (I) 2-110
Control Methods for Industrial Uses (II) 3-118
Control Methods for Industrial Uses (III) 4-94
Control Methods for Industrial Uses (IV) 5-112

BEERS, G. L.
RCA Super-FM Uses Locked-In Oscillator 11-76

BENNETT, PAUL
Precision Leveling 10-92

BERRY, CLIFFORD E.
Mass Spectrometer—New Industrial Tool 6-94

BUSSEY, WILLIAM H.
Bridge—Controlled Oscillator Design.8-114

CHAPMAN, F. W.
Measurement of Static and Dynamic Pressures (I) 8-84
Measurement of Static and Dynamic Pressures (II) 9-104

CLEMENT, LEWIS M.
Engineer as Executive 1-119

CODE, MAJOR GENERAL JAMES A., JR.
California—Pacific Gateway 6-99

COLTON, MAJOR GENERAL R. B.
Signal Corps Analyzes Enemy Radio.3-114

DAVIES, ROLAND C.
Invasion Radio Hazards 6-120
Maintaining Military Radio Communications 8-102
Postwar Horizons 12-79
WPB Moves to Ease Industry Reconversion 3-102

DUMONT, ALLEN B., DR.
6 Keys to Engineering Success.....11-111

DUNCAN, J. R.
Brief Case Transmitter 10-83

EDDISON, CLIFFORD
Chemical Research 11-98

EDELMAN, A.
Photoelectric Dimension Gage.....5-96

ELLIS, RAY C.
Radio in Russia 7-76

ERHORN, PHILIP C.
Flexible Studio Console 8-108
Inverse Feedback Amplifiers 2-86

ERICKSON, L. G.
Carrier for Radio and Wire Lines....6-96

FRAWLEY, R. N.
Measurement of Static and Dynamic Pressures (I) 8-84
Measurement of Static and Dynamic Pressures (II) 9-104

FRONDEL, DR. C.
X-Ray Adjustment of Quartz Plates..12-98

GELZER, JOHN
FM Detector Circuit 7-92

GILLESPIE, HENDERSON C.
Experience With HF Heating 2-80

GLASER, EDWARD M.
Multiwinding Motors (I) 3-104
Multiwinding Motors (II) 4-102

GLASS, PAUL
Deflection Beam Tube 8-90

GREENFIELD, E. W.
Line Characteristics 10-108

GRINSTEAD, C. E.
Measurement of Static and Dynamic Pressures (I) 8-84
Measurement of Static and Dynamic Pressures (II) 9-104

HAGUE, H. J.
Electronic Magnetizer 12-96

HANSEN, O. C.
California Sees Bright Export Future 6-107

HANSEN, W. W., DR.
Transient Response of Wide Band Amplifiers 11-80

HANSON, ROBERT M.
Modulator Load Reactance Correction 2-108

HARRISON, MAJOR GENERAL W. H.
Army Radio Production 4-100

HELLMAN, R. K.
Recording Two Variables 12-76

HICKOK, JR., R. D.
Direct Reading Frequency Meter ...8-120

HOPKINS, GORDON C.
Marine Console Radio Unit 1-108

HULL, COMMANDER D. R.
Military Radio Should Be Standardized 1-101

HUMPHREY, S. M.
Dual Pressure Resistance Welding...1-98

JAVNA, STEPHEN L.
Modulated Carrier for DC Amplifiers.1-102

JOHNSON, CLIFFORD J.
Spiral-Four System 5-104

JORDAN, J. P.
Oscillator Fundamentals 4-105

KAAR, JOHN M.
Engineer as Executive 6-123

KLIEVER, WALDO H.
Baling Press Recorder 7-106

KLOCK, SHELDON C.
Beryllium-Copper Springs 5-108

KRIDLER, R. A.
Radio Relay Links in Police Work..6-128

LANGDON, G. G.
Industry Uses of Carrier Current....1-82

LEE, REUBEN
Wound-Core Transformer Design...1-114

LIVARDY, JOHN P.
Scoring Stage Design 4-116

LLEWELLYN, F. B.
Tube Performance at Ultra High Frequency 11-88

LORCH, JOSEPH
Low Voltage Receiver 12-86

LUBCKE, HARRY R.
7000 Hours Television Service.....7-110

LYNCH, F. W.
Carrier for Radio and Wire Lines...6-96

McDONALD, JOSEPH H.
Marine Console Radio Unit.....1-108

McMINN, STANLEY P.
California Plans Her Electronic Future 6-100
Immediacy vs. Long Term RTPB Problem 2-84

MERMAGEN, HERBERT
Million Volt X-Rays 10-100

MOULIC, WILLIAM
Cathode Follower Circuit 10-90
Clipper and Limiter Circuit Action..5-100
Klystron Characteristics 6-90
Panoramic Principles 7-86
Series Tubes as Control Impedances..1-88
Simplified Pulse Generator 9-84

MULLER, W.
Saw-Tooth Generator for HF Oscilloscopes 5-120
Using Cathode Coupling 8-106

MYLES, ASA H.
Cold Cathode Timing Devices 7-98

NACHOD, CARL P.
Reflection of Sound 5-107

PACENT, LOUIS GERARD
Acorn Tube Technics 9-94

PETERSON, L. C.
Tube Performance at Ultra High Frequency 11-88

POTTER, E. V.
Tubes in Metallurgical Research (I) 4-112
Tubes in Metallurgy (II) 5-115

PUGSLEY, D. W.
Details of Magnetic Wire Recorder..1-116

REBER, GROTE
Filter Networks for UHF Amplifiers..4-86
Reflector Efficiency 7-101

REINKEN, L. W.
Applications of Selenium Rectifiers..1-110

REMNICK, HERBERT S.
Slow Action Recording 7-102

RETTINGER, M.
Feeder Wire Losses 7-89
Scoring Stage Design 4-116

RICHARDS, HARRY W.
Railroad Control With Carrier.....2-114

ROBERDS, WESLEY M.
Coupling Methods for Induction Heating 4-80

RUDD, W. C.
HF Heating Oscillators 7-96

SCAVARDA, CAPTAIN C. J.
Michigan's FM State Police System..2-90

SCHMELING, AUGUST M.
Stabilization at UHF 9-102

SCHULTZ, H. F.
Measurement of Static and Dynamic Pressures (I) 8-84
Measurement of Static and Dynamic Pressures (II) 9-104

SLACK, CHARLES M.
High Speed X-Rays by Field Emission Arc 11-104

SONBERGH, GILBERT
Carrier System Helps Run "Pennsy" R. R. 4-96
Recording Sound on Film 8-98
Servicing Airborne Radio 10-76
United Nations North Africa Installation 2-100
VHF Ignition Noise 11-94

STETSON, DR. HARLAN T.
Exploration of Cosmic Rays 1-94
FM "Bursts" Should Diminish.....11-83
Measuring Potentials in Growing Things 12-82

STEWART, WILLIAM A.
High Speed Time Bases 8-112

THOMSON, J. M.
Power Transformer Design Factors..2-99

THILO, EDWARD R.
High Speed X-Rays by Field Emission Arc 11-104

VAILE, C. A.
Light Spectra Analysis 6-114

VAN RENSSELAER, CORTLANDT
Low Frequency VTVM 6-110

WAGENER, DR. WINFIELD G.
Evolution of Tantalum Tubes 6-108

WALKER, A. C.
Polarographic Analysis 3-120

WASMANSDORFF, CARLTON
Reducing Radio Noise 7-80

WHITE, W. C.
Electronic Uses in Industry.....2-96

WILMOTTE, RAYMOND M.
The Engineer As Executive 8-116

WOLF, SIDNEY K.
Military Radio Should Be Standardized 1-100

ZAVALLES, CHARLES T.
High Speed X-Rays by Field Emission Arc 11-104

ELECTRONIC INDUSTRIES

Advertisers — December, 1944

	Page
Accurate Spring Mfg. Co.	196
Aerovox Corp.	118
Aircraft Accessories Corp.	6, 7
Aircraft-Marine Products, Inc.	55
Albion Coil Co.	65
Allied Radio Corp.	176
Allmetal Screw Products Co.	215
American Condenser Co.	212
American Lava Corp.	36
American Phenolic Corp.	151
Amperex Electronic Corp.	2
Amperite Co.	202
Andrea Radio Corp.	215
Andrew Co.	210
Ansonia Electrical Co.	17
Arnold Engineering Co.	134
Associated Research, Inc.	179
Atlas Products Corp.	136
Atlas Sound Corp.	195
Audio Development Co.	174
Automatic Electric Sales Corp.	52
Barker & Williamson	178
Bassett, Inc., Rex	204
Bendix Aviation Corp.: Pacific Division	138
Radio Division	73
Bentley, Harris Mfg. Co.	63
Benwood Linze Co.	68
Bird, Richard H.	204
Bliley Electric Co.	39
Boes Co., W. W.	26
Boonton Radio Corp.	202
Bradley Labs.	208
Bridgeport Mfg. Co.	40
Burndy Engineering Co.	35
Burstein-Applebee Co.	219
Cambridge Thermionic Corp.	188
Cannon Electric Development Co.	148
Capacitron Co.	60
Carborundum Co.	183
Capitol Radio Engineering Institute	189
Celanese Corp. of America	69
Centralab	43, 160
Chicago Telephone Supply Co.	32
Chicago Transformer Corp.	142
Cinaudagraph Speakers, Inc.	191
Clarostat Mfg. Co., Inc.	177
Clifton Products, Inc.	156
Cole Steel Equipment Co.	18, 122
Collins Radio Co.	58
Colonial Kolonite Co.	176
Columbia Wire & Supply Co.	215
Communications Co., Inc.	197
Concord Radio Corp.	180
Connecticut Telephone & Electric	42
Connector Division of International Resistance Co.	9
Cornell-Dubilier Electric Co.	147
Corning Glass Works	13
Cornish Wire Co., Inc.	128
Corry-Jamestown Mfg. Corp.	15
Coto-Coil Co., Inc.	172
Cramer Co., R. W.	210
Crystal Products Co.	127
Dalis, Inc., H. L.	224
Daven Co.	Cover 3
Dazor Mfg. Co.	207
De Jur-Amsco Corp.	72
Deutschmann Corp., Tobe	3
Dial Light Co. of America, Inc.	200
Diamond Wire & Cable Co.	192
Dolph Co., John C.	189
Drake Mfg. Co.	217
Dumont Electric Co.	206
DuMont Laboratories, Inc., Allen B.	163
Eastern Air Devices, Inc.	51
Eicor, Inc.	150
Eisler Engineering Co.	219
Eitel-McCullough, Inc.	50
Electrical Apparatus Co.	201
Electric Indicator Co.	191
Electric Soldering Iron Co., Inc.	221
Electronic Laboratories, Inc.	10
Electronic Products Mfg. Corp.	188
Electro-Voice Corp.	121
Erie Resistor Corp.	120
Fast & Co., John E.	205
Federal Telephone & Radio Corp.	66, 137
Foote Pierson & Co., Inc.	129
Formica Insulation Co.	11
Franklin Mfg. Corp., A. W.	143
General Ceramics & Steatite Corp.	49
General Electric Co.	5, 22, 23, 117, 144, 157, 184, 192
General Electronics, Inc.	47
General Instrument Corp.	44
General Industries Co.	41
General Radio Co.	64
Gothard Mfg. Co.	212
Green Electric Co., Inc., W.	168
Groves Corp.	186
Guardian Electric Mfg. Co.	111
Hallicrafters Co.	173
Hammarlund Mfg. Co., Inc.	25
Harvey Radio Co.	115
Harvey Radio Laboratories, Inc.	181
Haydon Mfg. Co., Inc.	162
Hipower Crystal Co.	221
Hopp Press, Inc.	126
Howard Mfg. Corp.	156
Hytron Corp.	107
Illinois Condenser Co.	168
Indiana Steel Products Co.	31
Insuline Corp. of America	209
J-B-T Instruments, Inc.	170
Jefferson Electric Co.	141
Jennings Radio Mfg. Co.	37
Johnson Co., E. F.	179, 198, 204
Jones Co., Howard B.	142
Kaar Engineering Co.	20
Kahle Engineering Co.	217
Karp Metal Products Co., Inc.	116
Kinney Mfg. Co.	136
Kold-Hold Mfg. Co.	194
Kurman Electric Co.	215
Langevin Co.	125
Lapp Insulator Co., Inc.	167
Lavoie Laboratories	109
Lectrohm, Inc.	219
Littelfuse, Inc.	187
Machlett Laboratories, Inc.	67
Mallory & Co., Inc., P. R.	Cover 2, 145
Measurements Corp.	200
Mec-Rad Division—Black Industries	14
Merit Coil & Transformer Corp.	4
Micro Switch Corp.	139
Millen Mfg. Co., Inc.	224
Mu-Switch Corp.	122
Mycalex Corp. of America	149
National Union Research Laboratories	124
New York Transformer Co.	28
Norton Electrical Instrument Co.	195
Ohmite Mfg. Co.	193
O'Neil-Irwin Mfg. Co.	219
Patton-MacGuyer Co.	215
Permoflux Corp.	164
Philco Corp.	45
Philharmonic Radio Corp.	221
Pioneer Gen-E-Motor	154
Porter Metal Products Co.	182
Presto Recording Corp.	38
Printloid, Inc.	190
Radell Corp.	190
Radiart Corp.	186
Radio Corporation of America: RCA Victor Division	21, Cover 4
Radio Receptor Co., Inc.	206
Radio Specialties Co.	217
Ray-O-Vac Co.	123
Raytheon Mfg. Co.	161
RBM Mfg. Co.	221
Remler Co., Ltd.	24
Rogers Mfg. Co., Dayton	221
Rothenstein, Albert	194
Sangamo Electric Co.	70, 71
Schauer Machine Co.	172
"S" Corrugated Quenched Gap Co.	59
Sentinel Radio Corp.	159
Sherron Electronics Co.	133
Shure Brothers	171
Sigma Instruments, Inc.	166
Signal Indicator Corp.	214
Simpson Electric Co.	48
Smith Mfg., F. A.	209
Snyder Mfg. Co.	214
Sola Electric Co.	113
Sonotone Corp.	155
Sperry Gyroscope Co.	19
Sperti, Inc.	146
Sprague Electric Co.	175
Stackpole Carbon Co.	54
Standard Transformer Corp.	132
Standard Winding Co.	181
Sticht Co., Inc., Herman H.	140
Struthers-Dunn, Inc.	61
Stupakoff Ceramic & Mfg. Co.	33, 165
Sun Radio & Electronics Co.	128
Sylvania Electric Products, Inc.	203
Synthane Corp.	56, 57
Tech Laboratories	185
Telicon Corp.	27
Terminal Radio Corp.	217
Thomas & Skinner Steel Products Co.	198
Triplett Electrical Instrument Co.	16
Tung-Sol Lamp Works, Inc.	12
Turner Co.	158
United Electronics Co.	119
United Screw & Bolt Corp.	46
United Transformer Co.	74
Universal Microphone Co.	29, 164
University Laboratories	185
U. S. Treasury	211
Utah Radio Products Co.	34
Valpey Crystal Corp.	140
Walker-Jimieson, Inc.	217
Warren Telechron Co.	135
Webster Electric Co.	126
Weltronic Co.	223
Waugh Laboratories	213
Western Electric Co.	180
Western Felt Works	8
Western Lithograph Co.	187
Westinghouse Electric Mfg. Co.	30, 53, 130, 131, 152, 153
Weston Electrical Instrument Corp.	169
Wheeler Insulated Wire Co., Inc.	199
Wiedemann Machine Co.	62
Wrigley Co., Wm.	184

While every precaution is taken to insure accuracy, we cannot guarantee against the possibility of an occasional change or omission in the preparation of this index.

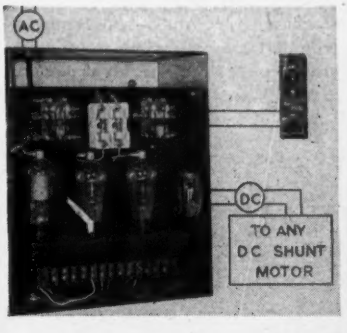
electronic Weltronic bulletins

RUNS D-C MOTORS FROM A-C AT FULL TORQUE

Any standard D-C shunt motor can now be operated from A-C power at full-load torque at all speeds from a few rpm to basic motor speed by using the Weltronic Motor Control. Speed reducers, gear motors, motor generators, transmissions or special motors are no longer needed when this control is used—and constant torque can be maintained as the speed is varied.

The control is a complete 'packaged' unit—it starts motors at an adjustable constant line current, brings them up to a selected speed and holds this speed under varying loads. In addition, it stops motors and if required can be designed to apply dynamic braking, reversing and 'inching' of motors—all from a single push button and dial control station located handy to the operator. Models are available up to 20 HP capacity.

Ask for Bulletin No. WTM-44



Weltronic COMPANY

DETROIT 19, MICH.